

# Jaddu Venkatesh

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## Summary

Proactive Embedded Engineer with over 2 years of combined experience in hardware design and embedded systems development. Proficient in firmware development, circuit design, and integrating communication protocols like UART, I2C and CAN. Hands-on expertise in microcontroller programming for STM32F4xx, nRF52xx and Realtek RTL876x series, alongside practical training in Embedded Linux and device drivers. Adept at delivering reliable, end-to-end solutions for IoT and automotive applications. Seeking to leverage my hardware and firmware expertise to drive innovation in embedded systems.

## Skills

- **Programming:** C, Embedded C, Firmware Development, FreeRTOS
- **Microcontrollers:** STM32, nRF5340, Realtek RTL8762G, RL78/L1A
- **Hardware Skills:** Schematic Circuit Designing, Hardware Debugging, and Testing
- **Protocols:** CAN, UART, I2C, SPI
- **Tools:** STM32Cube IDE, STM32Cube Monitor, nRF Connect Extension in VS Code, Keil IDE, Arduino IDE, OrCAD Capture, CAN Analyzer
- **Embedded Systems:** Embedded Linux (Trained), Device Drivers (Trained)

## Experience

### AUKLR Technologies Pvt Ltd

Mar 2023 – Present

*Embedded Hardware and Firmware Engineer*

- Developed firmware for STM32 and Realtek RL8762G microcontrollers, implementing efficient communication protocols such as I2C, SPI, CAN, and USART to enable seamless system integration.
- Implemented I2C protocol to drive Segment LCD displays in automotive clusters.
- Designed and validated CAN communication interfaces for real-time data exchange between vehicle VCUs and instrument clusters, improving system reliability for speed, gear, and diagnostics information.
- Conducted rigorous testing and debugging of hardware schematics, utilizing oscilloscopes for analyzing and validating analog signal performance.
- Designed and developed reliable analog and digital circuits for IoT and automotive projects, incorporating power-efficient solutions such as DC-DC buck/boost converters and Low Dropout Regulators (LDOs).
- Simulated and analyzed vehicle data using CAN analyzers to test and validate automotive cluster devices.
- Identified and resolved hardware issues through effective troubleshooting methods, significantly enhancing device reliability and reducing downtime.
- Maintained comprehensive design documentation, including schematics, BOMs, and testing reports.

## Education

### GMR Institute Of Technology, Rajam

May 2022

*Bachelor of Technology in Electrical and Electronics Engineering*

## Projects

### I2C-Based Segment LCD Display Control

Nov 2024 – Present

- Developed firmware for driving Segment LCD displays using the I2C protocol for an automotive cluster system.
- Worked with Realtek RL8762G microprocessor and utilized Keil IDE for firmware development.
- Optimized communication efficiency, ensuring seamless integration with hardware components.

### CAN Communication for VCU and Cluster Board

Mar 2024 – Sep 2024

- Designed firmware for real-time CAN communication between vehicle VCU and an instrument cluster.
- Utilized STM32 microcontroller and CAN Analyzer to test and validate communication interfaces.
- Improved real-time data exchange for speed, diagnostics, and BMS information, enhancing system reliability.

### NFC Wristband for Amusement Parks

Sep 2023 – Dec 2023

- Designed and developed an NFC-enabled wristband for seamless access and timing indication using LED blinking patterns.
- Created hardware schematics using OrCAD Capture and wrote firmware using nRF Extension in VS Code.
- Conducted end-to-end testing and debugging to ensure optimal performance and reliability.

## Certifications

### Device Driver Development Certification

2023

- Completed training in Embedded Linux and Device driver development, gaining foundational knowledge in Linux kernel programming and low-level driver implementation.

### nRF Connect SDK for nRF52xx Series

2023

- Certified by Nordic Semiconductor Academy, focusing on firmware development for nRF52xx microcontrollers using nRF Connect and Visual Studio Code.